Date of issue : 5 April,2010
Date of revision : 14 September,2018

Safety Data Sheet

1. Product and company identification

Product name	:	EL-GBL
Name of manufacturer	:	KANTO CHEMICAL CO., INC.
Address	:	2-1, Nihonbashi, Muromachi 2-Chome, Chuo-Ku, Tokyo, 103-0022, Japan
Name of section	:	Electronic materials division technical department
Telephone number	:	+81-3-6214-1080
Facsimile number	:	+81-3-3241-1043
Mail address	:	el-info@gms.kanto.co.jp
SDS No.	:	GE00432

2. Summary of danger and Hazard

GHS classification

Physical and chemical hazard

Flammable liquids	:	Out of category
Pyrophoric liquids	:	Out of category

Human health hazard

Acute toxicity(oral)	:	Category 4
Acute toxicity(dermal)	:	Out of category
Acute toxicity(inhalation:dust, mists)	:	Out of category
Skin corrosion/irritation	:	Out of category
Serious eye damage/eye irritation	:	Category 2A
Specific target organ systemic toxicity(single exposure)	:	Category 2、 Category 3 (anesthetic action)

Environmental hazard

Hazardous to the aquatic environment-acute hazard	:	Out of category
Hazardous to the aquatic environment-chronic hazard	:	Out of category

Pictogram or symbol

Signal word : Warning

Hazard statement : Harmful if swallowed
Causes serious eye irritation
May cause damage to organs (central nervous system)
May cause drowsiness and dizziness

Cautions

Safety measurements	:	Do not breathe dust, mist, and vapor.
		Use only in a well-ventilated area.
		Do not eat, drink or smoke when using this product.
		Wear appropriate protective gloves, glasses, clothing, face shield, or mask.
		Wash hands thoroughly after handling.
First-aid measures	:	If inhaled : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical treatment if you feel unwell.
		If swallowed: Rinse mouth. Get medical treatment if you feel unwell.
		If in eyes : Rinse cautiously with water for several minutes. Get medical treatment.
		If on skin : Remove contaminated clothing and the substance. Get medical treatment, if you feel unwell.
		Wash hands thoroughly after handling.
		If exposed, get medical treatment.
Storage	:	Tightly container closed and store in a well-ventilated area.
		Store locked up.
Disposal	:	Dispose of contents and containers appropriately in accordance with related regulations.

3. Composition/Information on ingredients

Substance/Mixture	:	Substance
Chemical name or commercial name		
	:	4-Butyrolactone
Ingredients and composition		
	:	4-Butyrolactone min. 99.5%
Chemical formula	:	C4H6O2
CAS No.	:	96-48-0
TSCA Inventory	:	Registered
EINECS No.	:	2025095

4. First aid measures

Inhalation	:	Remove the victim to fresh air, and make him blow his nose and gargle.
Skin contact	:	Wash the affected areas under running water.
Eye contact	:	Wash the affected areas under running water for at least 15 minutes. If necessary, get medical treatment.
Ingestion	:	Give the victim water or salt water and make him vomit. Get medical attention.
Protection for first aid person		
	:	Rescuers should wear proper protective equipment like rubber gloves, goggles.

5. Fire fighting measures

Extinguishing media	:	Water, dry chemical powder, carbon dioxide, dry sand
Prohibited extinguishing media		

: None

Particular fire fighting : Move containers from fire area if it can be done without risk, if not possible, apply water from a safe distance to cool and protect surrounding area.

Dry chemical powder, carbon dioxide or dry sand should be used for small fires. Foam extinguisher is effective for a large scale fire.

Protection for firefighters

: Wear breathing apparatus.

6. Accidental release measures

Cautions for personnel : Wear proper protective equipment and avoid contact with skin and inhalation of vapor. Conduct operations from upwind and evacuate people downwind. Remove all sources of ignition. Keep away personnel except for authorized ones from spillage area by stretching ropes.

Cautions for environment : Attention should be given to avoid discharge of spilled product into rivers and resulting environmental damage. When diluting spill with large amounts of water, discharge of untreated wastewater into the environment must be avoided.

Removal measure : Absorb spill with inert material (e.g., diatomaceous earth, sand) and flush spillage area with copious amounts of water.

Prevention of second accident

: Remove nearby sources of ignition and prepare extinguishing media.

7. Cautions of handling and storage

Handling

Engineering measures : Wear proper protective equipment to avoid contact with skin or inhalation of vapor. Fire is strictly prohibited.

Ventilate well at working places.

Cautions for safety handling

: Use with an enclosed system or a local exhaust ventilation. Use in well-ventilated areas.

Cautions : Do not allow contact with oxidizing substances.

Storage

Adequate storage condition

: Store in a dark, cool place and tightly closed.

Safety adequate container materials

: Glass, fluorine resin, stainless steel

8. Exposure control/Personal protection

Engineering measures : Use with an enclosed system or a local exhaust ventilation.

Control parameters

ACGIH(2015) : Not established

Protective equipment

Respiration protective equipment

: If necessary, wear chemical cartridge respirator with an organic vapor cartage

Hands protective equipment

: Impervious protective gloves

Eyes protective equipment
: Safety goggles
Skin and body protective equipment
: Protective clothing, protective boots

9. Physical and chemical properties

Appearance	:	Liquid
Color	:	Colorless - pale yellow
Odor	:	Acetone like odor
Boiling point	:	204℃
Melting point	:	-43.53℃
Flash point	:	98.3℃
Auto-ignition point	:	455℃
Explosion characteristics		
Explosion limit	:	upper : 16vol% lower : 3.6vol%
Vapor pressure	:	1.5hPa(20℃)
Vapor density	:	3.0
Density	:	1.13g/cm3 (25℃)
Solubility		
Solubility in solvents	:	Water ; Miscible
log Pow	:	0.298
Other data	:	Viscosity : 1.7cP(25℃)

10. Stability and reactivity

Stability	:	Stable under normal conditions.
Reactivity	:	May react with oxidizing substances.
Incompatible conditions	:	Light, heat
Incompatible materials	:	Oxidizing substances
Hazardous decomposition products		
	:	Carbon monoxide

11. Toxicological information

Acute toxicity	:	Harmful if swallowed(category 4)
		Dermal : Out of category
		Inhalation(vapor) : Not possible to classify because of insufficient data.
		Inhalation(dust, mist) : Out of category
		rat oral LD50=1540mg/kg
		rat inhalation LC50>5.1mg/L/4H
		guinea pig skin LD50>5000mg/kg
Skin corrosion/irritation	:	Out of category

In the rabbit test, application of undiluted substance for 20 hours caused no irritating effects. In other rabbit test, slightly, hardly perceptible or moderate erythema and hardly perceptible edema occurred and resulted as "mildly irritating". Based on the information, the substance was classified into out of category.

Serious eye damage/eye irritation

: Causes serious eye irritation(category 2A)

In several reports of rabbit tests, there was only one information of the study in conformity with OECD TG 405 and GLP from the "List 1" information source. In the test with 0.1mL of undiluted substance, the modified maximum average score (MMAS) was 43.9 (maximum score was 110) equivalent to AOI 30-80. Thus, the substance was classified into category 2A.

Respiratory sensitization or Skin sensitization

: Respiratory sensitization : Not possible to classify because of insufficient data.

Skin sensitization : Not possible to classify because of insufficient data.

Mutagenicity : Not possible to classify because of insufficient data.

There are negative results in both of two micronucleus tests using bone marrow cells obtained from the mice intraperitoneally administered (in vivo mutagenicity test in somatic cells).

Carcinogenic effects : Not possible to classify because of insufficient data

IARC classifies it as group 3(not classifiable as to its carcinogenicity to humans).

Effects on the reproductive system

: Not possible to classify because of insufficient data.

Specific target organ systemic toxicity single exposure

: May cause damage to organs (central nervous system)(category 2)

May cause drowsiness and dizziness(category 3)

As for acute toxic effects based on human cases, the following symptoms were described: bradycardia, hypothermia, depression of central nervous system, prolonged unconsciousness, confusion, aggression, torpor, and ataxia. In fact, unconsciousness was reported in numerous cases who ingested the substance or its products, and the signs concurrently observed included coma, narcosis, convulsions and hypopnea (KemI-Riskline (2004), HSDB (2000)). In the animal study, signs of sedation and loss of righting reflex were described in rats (LD50 value: 1800 mg/kg) following single oral administration. With regard to the results described above, since information on humans were collected from the "List 2" information source and the findings of rats corresponded to category 2 within the range of the guidance values, the substance was classified as category 2 (central nervous system). Moreover, narcotic effects were also described, so that category 3 (narcotic effects) was added.

Specific target organ systemic toxicity repeated exposure

: Not possible to classify because of insufficient data.

Aspiration hazard : Not possible to classify because of insufficient data.

12. Ecological information

Ecotoxicity

Fish toxicity : Acute aquatic toxicity : Out of category

Chronic aquatic toxicity : Out of category

Fish (carp) LC50=220-460mg/L/96H

Persistence and degradability

: Not available

Bioaccumulative potential : Not available

13. Disposal consideration

Residual disposal : Burn in a chemical incinerator equipped with an afterburner and a scrubber. Or entrust approved waste disposal companies with the disposal.

Containers : In case of disposal of empty bottles, dispose bottles after removing the content thoroughly.

14. Transport information

UN class : It is not regulated under UN regulations.

15. Regulatory information

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

16. Other information

References

Dictionary of Organic Compounds, The society of Synthetic Organic Chemistry, Kodansha Ltd.(1985)

Solvents Handbook, T, Asahara el, Kodansha Scientific Ltd.(1976)

Dangerous Properties of Industrial Materials,6th ed. N.I.Sax Van Nostrand Reinhold Company(1984)

Handbook of 16817 Chemical Products, The Chemical Daily Co.(2017)

The information contained herein is based on several references and the present state of our knowledge. However the SDS does not always cover all information about the product, handle the product carefully.The information is intended to ordinary usage, in case of particular handlings, conduct appropriate safety measurements.The information herein is only provision of information, and it does not represent a guarantee the properties of the product.The Safety Data Sheet(SDS) is prepared based on JIS Z7253, and it has the same required elements on the Material Safety Data Sheet(MSDS) which is prepared based on JIS Z7250:2010.